

**A PORTABLE LII BASED INSTRUMENT AND METHOD FOR
PARTICULATE CHARACTERIZATION IN COMBUSTION EXHAUST**

Abstract of the Disclosure

5 An improved instrument and method are provided for particulate
characterization in combustion exhausts. An instrument for measuring
particles of combustion exhausts includes a laser for producing a high
intensity laser pulse. A sample cell receives a combustion exhaust input and
the high intensity laser pulse. At least one detector detects a signal
10 generated by particles in said received combustion exhaust input. The
detected signal includes laser induced incandescence (LII). Signal
conditioning electronics is coupled to the detector and particle data is
displayed during transient operation of a combustion engine. Data related to
mass concentration, number density, and particle size of particles in the
received combustion exhaust input is measured and displayed.